Duke workshop addresses environmental justice issues in North Carolina

By Sara Mishamandani

Environmental justice, exposure to toxic chemicals, and sustainability were topics of discussion at the Environmental Justice Workshop *(http://sites.duke.edu/ejworkshop/)* June 28-30 in Durham, N.C., hosted by the NIEHS-funded Duke University Superfund Research Program (SRP).

Faculty and students from Johnson C. Smith University, *(http://www.jcsu.edu/)* an historically black institution in Charlotte, N.C.; Charlotte-Mecklenburg K-12 teachers; and Charlotte-area community leaders met with scientists, learned about environmental health topics, and explored connections between environmental justice and sustainability.

Environmental Justice Workshop participants visit the Rogers Road neighborhood in Orange County, N.C. Community organizers have lobbied against a nearby landfill for 25 years. The landfill closed to residential waste the day participants visited. (Photo courtesy of Noelle Wyman)

Eileen Thorsos, of the Duke SRP Research Translation Core, organized the event and kicked off the meeting with a case study to explore definitions for, and connections between, environmental justice and sustainability. The workshop also included a tour of SEEDS, *(http://www.seedsnc.org/)* an urban garden in Durham that provides a variety of programs to local youth and community members, and a visit to the Rogers-Eubanks neighborhood (see text box), an historically African-American community with a long history of battling environmental injustice.

Fry discussed the links between biological pathways and long-term human health effects of heavy metals. (Photo courtesy of Rebecca Fry)

"Our workshop brought SRP research on health risks from toxic exposures into context and connected it with the experiences of communities organizing against environmental injustices," said Thorsos. "Our teachers, community leaders, and students are taking these connections between research, environmental justice, and sustainability, back to their classrooms and communities."

Linking chemical exposures to health

The workshop included talks by local scientists on environmental health topics relevant to environmental justice. Rebecca Fry, Ph.D., an NIEHS-funded University of North Carolina at Chapel Hill SRP investigator, explained how arsenic poisons the water of individuals around the globe, including North Carolina. Her research investigates certain pathways and altered genes associated with arsenic exposure. By understanding these molecular pathways, scientists can accurately detect exposure, predict individual differences in susceptibility to disease, and understand the molecular basis for disease.

Ekenga studies urban pollutants that influence hormones in the human body and their connection with breast cancer. (Photo courtesy of Steve McCaw)

Christine Ekenga, Ph.D., an NIEHS postdoctoral fellow, briefed participants on the role of epidemiology in promoting and protecting public health, and described how epidemiology is used to study the relationship between chemical and nonchemical stressors and human health outcomes.

Heileen Hsu-Kim, Ph.D., a Duke SRP scientist, focused on an activity for teachers to bring back to their classrooms called NanoToss, a felt board activity that helps K-12 students conceptualize how coatings on nanomaterials affect their mobility in the environment. She also described the concepts of nanoremediation and bioremediation to clean up the environment. Hsu-Kim's NIEHS-funded project investigates the use of nanomaterials to treat sediment and water contaminated by developmental toxicants, boosting microbial degradation of the contaminants.

Anthony Oliveri, a Duke SRP trainee, also led the participants on a tour of the Duke Neural and Behavioral Toxicity Assessment Core, where Duke SRP research connects toxic exposures to changes in emotion and behavior.

Engaging children in farm worker justice and sustainable agriculture

Felicia Walker-Cooper, a Charlotte-Mecklenburg Schools instructional literacy coach, smells lemon balm at SEEDS, which promotes leadership development among inner-city high school students through urban gardening.

Teachers, faculty, and students attending the workshop gained valuable insight into ways to teach children about farm workers, food and farming, and cultural awareness from Leanne Simon, a multimedia journalist and author. Participants also met with people from Student Action with Farmworkers, *(http://saf-unite.org/)* to learn about their work in the Southeast to create a more just agricultural system, and went on a tour of Fickle Creek Farm *(http://home.mebtel.net/~ficklecreek/)* to learn about how they integrate multiple sustainable farming practices.

"We are very excited about teaching our students about harvesting fruits and vegetables, pesticides, and immigrant farmworkers," said Lara Harris, a Charlotte-Mecklenburg Schools literacy specialist and workshop participant. "Working with community members who attended the workshop, we are also planning to plant a community garden with Charlotte-Mecklenburg students, so they will have the opportunity to connect what they learn in school to real-world experiences."

(Sara Mishamandani is a research and communication specialist for MDB Inc., a contractor for the NIEHS Superfund Research Program and Division of Extramural Research and Training.)

The environmental justice struggle in the Rogers-Eubanks neighborhood

The Orange County Landfill, *(http://sites.duke.edu/docst110s_01_s2011_sb211/rogers-eubanks/the-orange-county-landfill/)* located on Eubanks Road in Chapel Hill, N.C., has operated since 1972, when Mayor Howard Lee promised improved infrastructure and benefits to the community, including parks and recreational facilities, street lamps, and public water access, in exchange for housing the county landfill. The landfill did not have restrictions and was built without a liner, putting its contents, including hazardous materials, such as chemical waste, paint, and batteries, in direct contact with soil and groundwater.

Ten years later, instead of closing down as originally promised, the landfill was expanded to meet waste storage demands of a growing county. Contaminated surface, ground, and well water affected some community members who did not have access to public drinking water, and litter was blown off trucks heading to the landfill, scattering across lawns and roadsides.

As promises to the community remained unfulfilled, neighbors organized to bring awareness to the injustice imposed on their community. After more than 40 years of enduring the landfill, David Caldwell, of the Rogers-Eubanks Neighborhood Association (RENA) and Coalition to End Environmental Racism, won a small victory. As of June 30, the Orange County Landfill no longer accepts household waste.

The Duke Environmental Justice Workshop participants joined David Caldwell and other members of RENA June 29 to witness the closure ceremony. Despite this win, the landfill will remain in operation and continue to accept tires, scrap metal, large appliances, electronics, and other hazardous wastes.

The Environmental Factor is produced monthly by the National Institute of Environmental Health Sciences (NIEHS) *(http://www.niehs.nih.gov/)*, Office of Communications and Public Liaison. We welcome your comments and suggestions. *(bruskec@niehs.nih.gov)*

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